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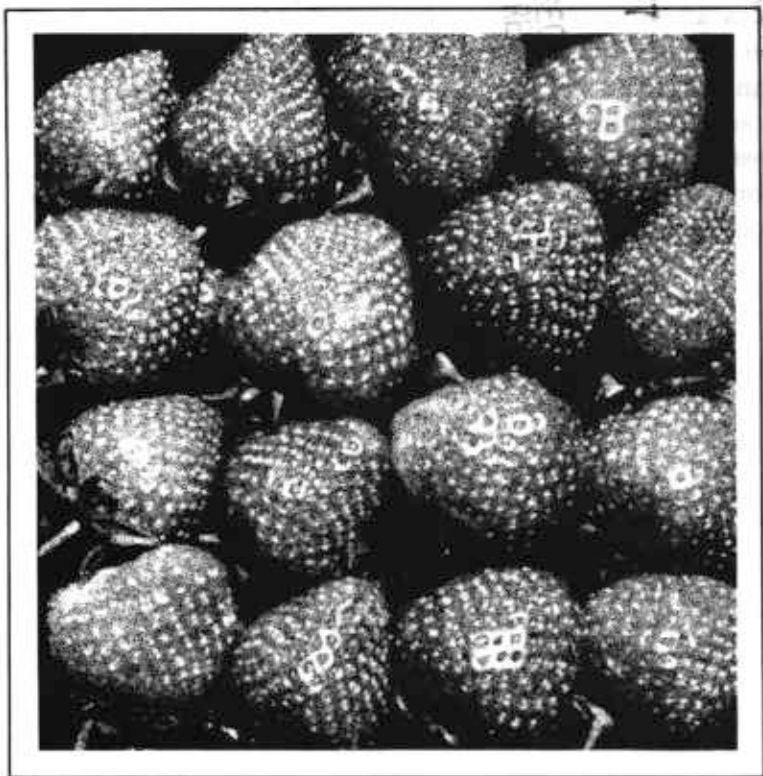
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STRAWBERRY VARIETIES IN THE UNITED STATES

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STRAWBERRY VARIETIES IN THE UNITED STATES

By D. H. SCOTT, G. M. DARROW¹, and F. J. LAWRENCE, horticulturists, Plant Science and Germplasm Institute, Agricultural Research Service

Strawberries are grown throughout the United States. They are grown extensively for market and in home gardens. The cultivated strawberry is an American fruit that originated by hybridization from the wild species of eastern North America and the wild species of South America. The berries have a unique, tangy taste. They are highly valued as dessert fruit. In addition, they are rich in vitamin C.

Commercially, the strawberry industry today receives over \$105 million yearly for the freshly harvested fruit. About one-third of the crop is processed. This adds substantially to its overall value.

The 20 most important varieties, based on total tonnage of fruit marketed in 1970, are listed in descending order. They are Tioga, Northwest, Shasta, Midway, Surecrop, Fresno, Blake-more, Florida Ninety, Pocahontas, Tennessee Beauty, Catskill, Albritton, Dabreak, Sparkle, Headliner, Raritan, Shuksan, Siletz, Hood, and Robinson.

Many other varieties are grown successfully. Some varieties with

special qualities may be best for a given region. Other varieties are chosen for such particular qualities as flavor, shape, or hardness.

New varieties of strawberries appear from time to time. These may grow well in one region, but prove unsatisfactory in other regions. Before planting new varieties extensively, growers should test them for more than one year. Compare new varieties with those already successful, and reject them if they are not superior to the standard varieties.

SELECTING A VARIETY

Grow the very best varieties for your region. Choose them carefully; many environmental conditions affect the performance of a given variety. New varieties become available frequently and the best variety last year may not be the best one this year.

There are two general classes of strawberries. One is called "everbearers;" the other, "June-bearers" (one crop varieties). As their name suggests, everbearers produce fruit during spring, summer, and fall. June-bearers, on the

¹ Retired.

other hand, produce fruit only in late spring and early summer.

Whether the strawberries are grown in a home garden or for market influences the selection of a variety. In turn, the type of market use may determine the variety of strawberries grown. Strawberries are marketed fresh and frozen. They also are processed for preserves, flavoring, concentrates, and extracts.

Regional Differences

Regional adaptation refers to the response of a variety to environmental conditions within a region or area. One major factor is the relationship between temperature and the amount of daylight on the growth and fruit-bearing of plants.

Varieties of strawberries respond differently to these variable conditions. Differences appear in the growth, vigor, and productivity of plants; in the size, flavor, and firmness of fruit; and in susceptibility to diseases. Long days and warm temperatures favor the growth of leaves and runners. Short days and cool temperatures are necessary for flower formation in the June varieties. Everbearing varieties can produce flowers during either long or short periods of daylight.

Southern Varieties

Varieties adapted in the Southern States need only short winter rest periods or none at all. They grow vigorously and form flower buds during the short days and

mild temperatures of late fall, winter, and early spring. They are also able to withstand the high temperatures of summer. Most southern varieties are resistant to leaf spot and leaf scorch.

Of the southern varieties, Florida Ninety requires the least rest. Dabreak, Headliner, Albritton, Earlibelle, Tioga, Fresno, and Sequoia demand additional rest, while Blakemore, and Pocahontas need the longest rest period.

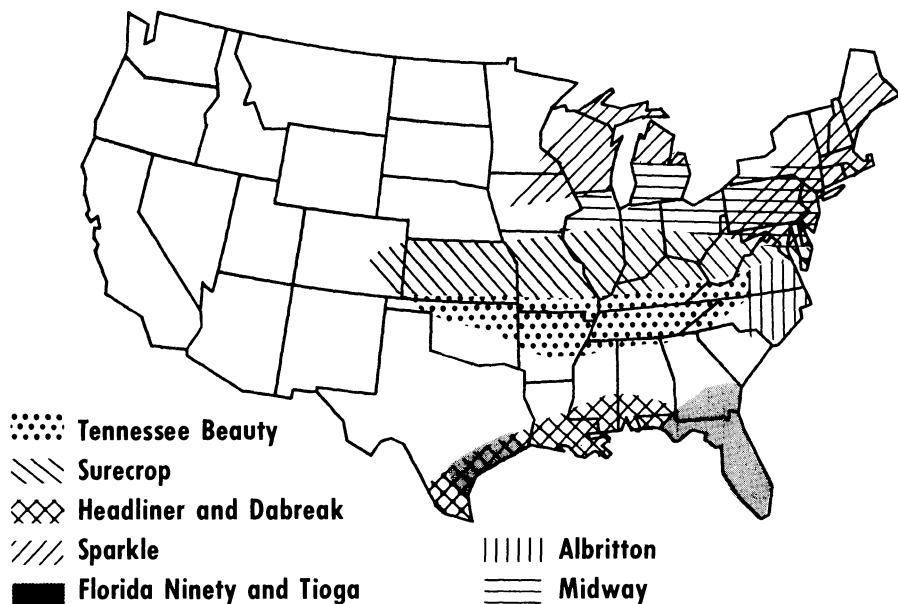
Geographically, different varieties thrive in different areas, Florida Ninety is the dominant variety in Florida and along the Gulf Coast. Dabreak and Headliner are the major varieties in Louisiana. Albritton and Earlibelle are foremost in eastern Virginia, eastern North Carolina, and southward along the Atlantic Coast.

Tennessee Beauty, Blakemore, and Pocahontas are the leading varieties over a wide arc that extends from southwestern Kentucky southward to within 100 miles of the Gulf Coast, then westward to eastern Oklahoma and Texas.

Generally, everbearing varieties perform poorly in the South.

Northern Varieties

Northern varieties have relatively long rest periods. They grow very little or very slowly during short days and cool temperatures. If you grow northern varieties in Florida, they will blossom and produce fruit from



Map shows the regions in which Tennessee Beauty, Surecrop, Headliner, Dabreak, Sparkle, Florida Ninety, Albritton, and Midway are grown profitably.

2 to 2½ months later than Florida Ninety.

Northern plants can withstand cold winter temperatures that would severely damage the crowns and flower buds of southern varieties. Midway, Catskill, Surecrop, and Sparkle are the varieties grown most extensively in the Northern States.

In the North, Gem and Ogallala are everbearing varieties that are favored for home gardens. Ogallala especially is well known for its winter hardiness. Sometimes, it is able to survive temperatures of -40° F. Dunlap and Trumpeter are the most hardy of the northern varieties during winter. For this reason they are the leading types in the Plains States and the Upper Mississippi Valley.

In general, varieties that are adapted to the Eastern United

Eastern and Western Varieties

States are not satisfactory in the Western United States and vice versa. To some extent, this is caused by differences in diseases. Viruses, for example, are more numerous and varied in the West than in the East. There are differences in the prevalence of foliage diseases as well.

Subtle differences in climatic conditions may also affect the performance of individual varieties. Northwest, Shasta, Tioga, Fresno, Marshall, and Hood are the major varieties in the Western United States.

West Coast varieties, especially Tioga, Shasta, and Northwest, are produced in large quantities.

Tioga and Shasta account for approximately 80 percent of California's strawberry production.

FACTORS AFFECTING GROWTH

Vigorous growth is essential to the production of large quantities of good berries. Consider such factors as soil fertility, temperature, and ripening season when considering plant growth.

Soil Fertility and Moisture

Strawberry varieties respond differently to changes in soil composition and soil moisture. Where the soil is fertile and has ample moisture, varieties such as Blakemore and Surecrop may produce beds so dense that they develop few berries. However, when late runners are removed so that the remaining plants are spaced 4 to 6 inches apart, Blakemore and Surecrop plants can yield a large crop.

Blakemore, Pocahontas, Surecrop, Catskill, and Dunlap grow well in a wide range of soil types. Earlidawn, Raritan, Jerseybelle, and Redstar, on the other hand, require irrigation as well as fertile soil to produce enough runners and runner plants to make large yields possible.

Surecrop in the East and Marshall in the West are well known for their resistance to drought. They produce crops under arid conditions better than other varieties do. Marshall is grown at higher elevations in Oregon and Washington than Northwest;

Northwest is grown in valleys where moisture is fairly uniform and irrigation is possible.

Plant Development

Varieties differ greatly in growth habits and productivity. Some plants have certain characteristics that make them adaptable to a particular region. In the Eastern States, Surecrop, Midway, Catskill, and Dunlap develop the best growth patterns. Normally they produce low, branching flower clusters. Should frost kill the first flowers, later blooms can still form large berries. In the South, Headliner and Florida Ninety have similar growth habits.

Some varieties, particularly in California, produce few berries per cluster, but they have many clusters per plant. The berries are large, and yields are high. Florida Ninety and Headliner bear large fruit in the South, but produce small berries when grown in the North. Varieties that boast large, showy fruit are Albritton, Apollo, Atlas, Catskill, Fairfax, Florida Ninety, Guardian, Jerseybelle, Midland, Raritan, Red glow, Shasta, and Tioga.

Blossom Fertility

Barring frost injury, the first flower of a cluster to open is the one most likely to form fruit. The last flowers to open are usually sterile. On most varieties, about one-third of the last blossoms on each cluster may not form fruit. The flowers may appear to be normal, but they fail to develop or,

at best, produce stunted, undeveloped fruit.

Besides frost damage, blossoms are threatened by rain, diseases, and insect pests. You can help combat blossom sterility by cultivating early-formed, well-spaced runner plants and by thinning them as they develop. These types produce fewer sterile flowers than late-season, crowded ones.

Blossom Hardiness

Some varieties of strawberries are less vulnerable to frost injury than others. Short flower stems and flowers growing under protective leaves enable these varieties to escape frost damage. Other varieties produce flowers that are resistant, especially in the unopened bud stage, to a few degrees of frost. Earlidawn and Howard 17 are two varieties with hardy flowers.

Strawberry varieties that bloom late usually escape frost injury, unless they are grown in an area subject to late spring frosts. Armore, Redstar, Sparkle, and Tennessee Beauty bloom late, after most danger of frost is past. Although Robinson is a late-bloomer, its flower buds are very tender as they emerge from the crowns. The buds will be damaged if low temperatures occur at this stage.

Varieties most likely to escape frost damage are: Catskill, Earlidawn, Howard 17, Midway, Pochontas, Redstar, Sparkle, and Tennessee Beauty. In areas where frosts are unusually severe, ever-bearing varieties are generally grown. If their first blossoms are

killed, the plants produce a new set of flower clusters.

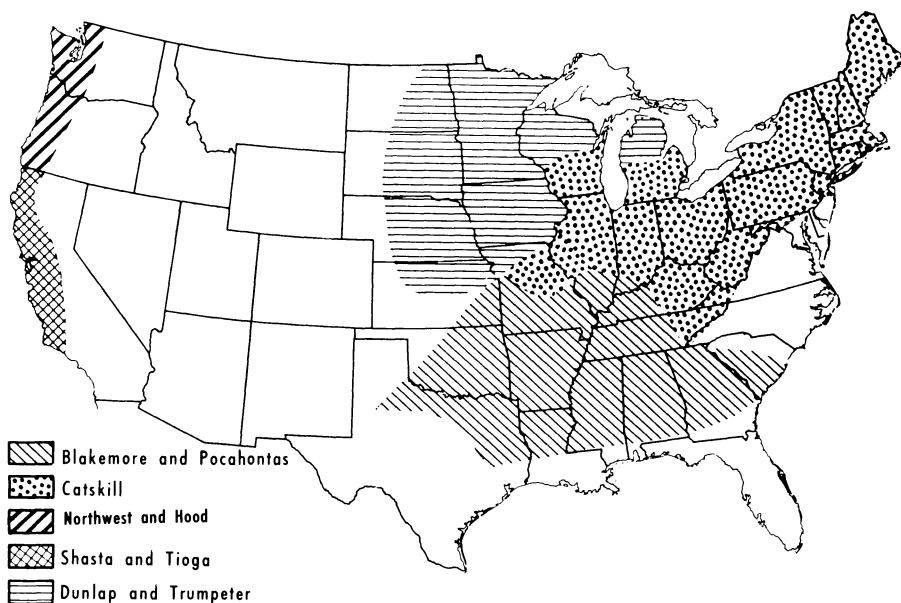
Temperature

Flavor is just one quality that is determined and influenced by the interplay of climatic conditions. Temperature, climate, and local weather combine to affect the dessert quality of strawberries. Quality varies from season to season, even within the same region. Variations are dependent upon differences in temperature and the amount of sunlight.

Strawberries usually have more flavor when grown in regions where days are sunny and nights are cool. Flavor is not as good when days are generally cloudy and humid, and nights are warm. Part of the difference may be explained by geography. For example, Midway has more flavor and displays better quality in Michigan and New York than in Maryland and States farther south.

Fairfax, Fletcher, Midland, and Sparkle are good dessert varieties when grown in the North. These same types, when grown in the South, are unsatisfactory. Pochontas, Sunrise, and Surecrop are best when grown in the East-Central States. Albritton, Blakemore, Florida Ninety, and Suwannee are tastiest in the South. Of varieties grown in California, Tioga has the best flavor. Marshall surpasses all in Oregon and Washington.

Temperature, especially in combination with high humidity, has a pronounced effect on the firmness of fruit. Strawberries grown



Map shows the regions in which Blakemore, Pocahontas, Catskill, Northwest, Hood, Shasta, Tioga, Dunlap, and Trumpeter are grown extensively

during cool temperatures are firmer than those that have ripened during warm, humid weather.

Catskill and Sparkle varieties are firm enough for commercial use in the cool temperatures of New England, New York, and central Michigan. These same varieties, however, are too soft when produced in Maryland and States southward. Certain varieties, such as Albritton, Atlas, Blakemore, Midway, Pocahontas, Sunrise, Tennessee Beauty, and Tioga, have firm fruit wherever they are grown.

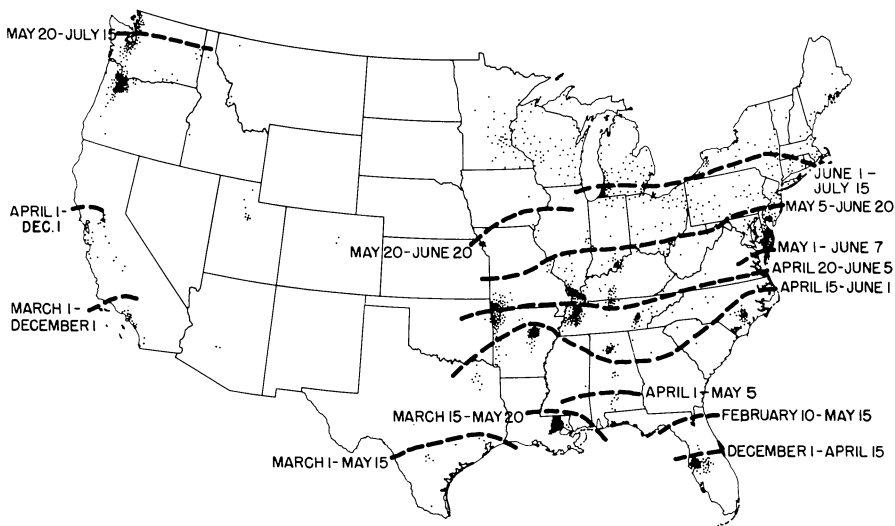
Ripening Season

Climate, soil composition, exposure, and method of cultivation—all affect the ripening season. Weather, in particular, helps

to determine the overall length of the season. Varieties that bloom early in spring ripen early. Similarly, varieties that bloom late ripen late.

High temperatures hasten ripening and shorten the interval between blossoming and the appearance of ripe fruit. Moderate temperatures of 70° to 80° F. during the day and 60° to 65° during the night result in a ripening period of about 30 days. During cool weather, a variety that normally ripens early or quickly may be delayed several days.

In California, the largest strawberry acreage is near the coast where temperatures are cool as modified by the ocean. Thus, flower bud development occurs continuously and the plants produce berries throughout summer.



DN-957

Map shows the location of the principal commercial strawberry-producing regions, the approximate ripening time in each region, and the northward progression of the strawberry season.

In the cool, central coastal area of California, Shasta begins maturing in April and continues bearing through November. But Shasta, like many other varieties, produces only one crop when grown elsewhere. In Massachusetts, Shasta bears only one crop each year, in June.

Varieties may be selected on the basis of their ripening season:

Very Early:

Earlidawn
Midland

Early:

Atlas
Blakemore
Dabreak
Dunlap
Earlibelle
Florida Ninety
Headliner
Howard 17
(Premier)
Redchief
Redglow

Early (continued):

Sequoia
Sunrise
Surecrop

Midseason:

Aliso
Apollo
Catskill
Empire
Fairfax
Fletcher
Fresno
Guardian
Marshall

Midseason

(continued):

Midway
Raritan
Shasta
Tioga

Late Midseason:

Albritton
Armored
Hood
Northwest
Puget Beauty
Robinson

Late:

Badgerbelle
Columbia
Garnet
Jerseybelle
Marlate
Siletz
Sparkle
Tennessee
Beauty

Very Late:

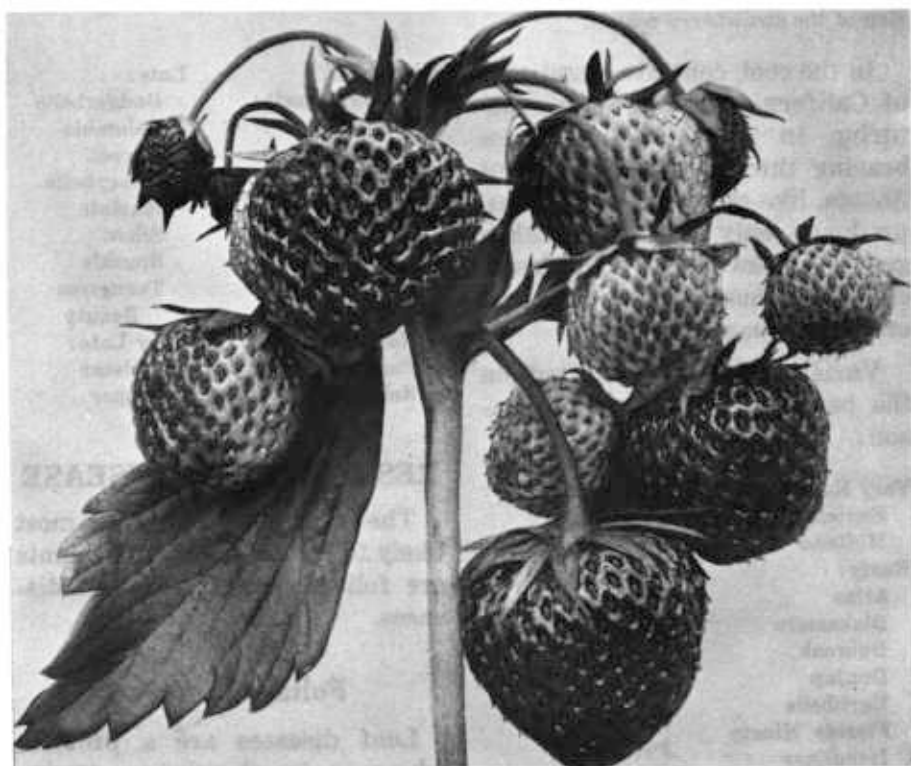
Redstar
Vesper

RESISTANCE TO DISEASE

The three types of diseases most likely to attack strawberry plants are foliage, virus, and root diseases.

Foliage Diseases

Leaf diseases are a problem wherever strawberries are grown. They are more destructive in warm, moist regions than in dry regions. Varieties differ in their



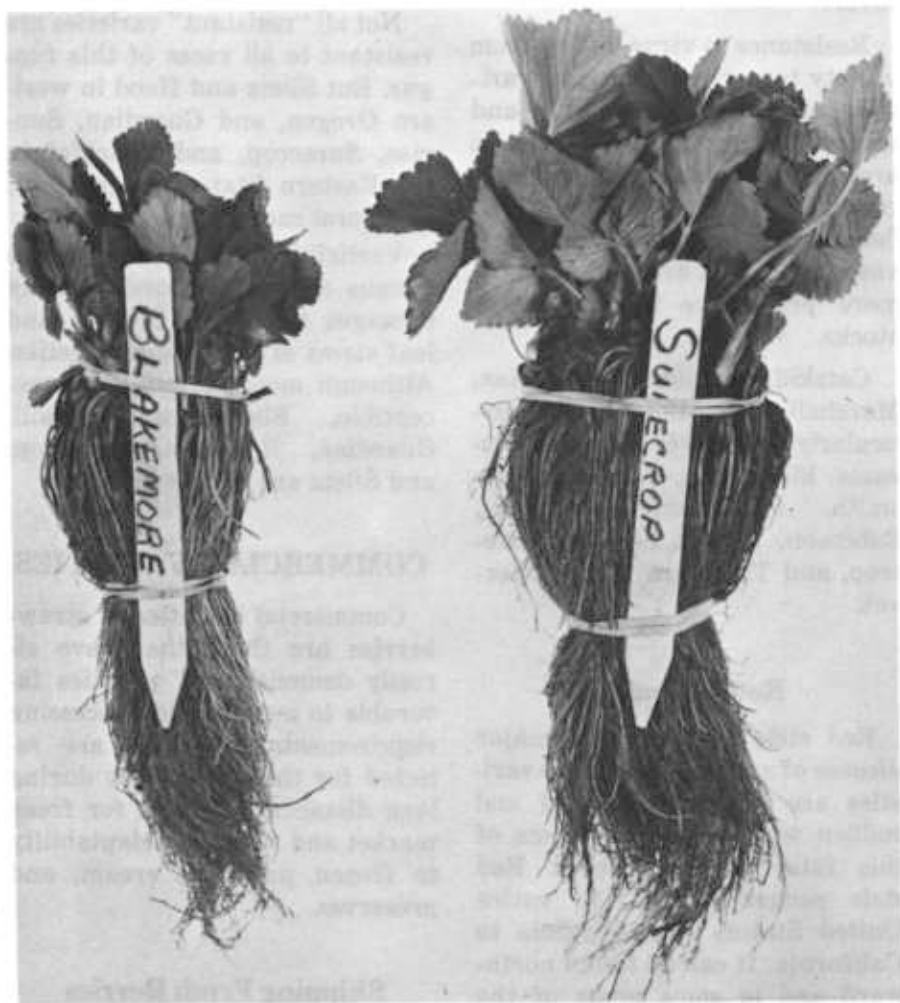
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Fruit clusters of two perfect-flowered varieties: Top, two flowers have set fruit and several are sterile; bottom, all flowers have set fruit.

resistance to disease. Varieties that are resistant to one disease may be highly susceptible to another disease.

Sunrise is a variety that is resistant to leaf scorch, but susceptible to leaf spot. Robinson is resistant to leaf spot, but susceptible to leaf scorch. Albritton, Dabreak, Earlibelle, Fairfax,

Fletcher, Midland, Ozark Beauty, Redchief, Rockhill, and Surecrop are varieties that are usually resistant to leaf spot and leaf scorch diseases. When grown in humid areas, highly susceptible types such as Armore and Vesper are severely damaged by leaf diseases.



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Note the differences in the crowns and root system of these Blakemore and Surecrop plants. Each bundle contains 25 plants of average size.

Virus Diseases

As time goes by, most plants lose vigor and productivity. Virus diseases are responsible for much of this "running out," as the loss of vigor is called. All varieties of strawberries are susceptible to virus attack. Viruses infect the whole plant and all of its runner plants. Diseased plants do not recover.

Resistance to virus differs from variety to variety. Sensitive varieties are weakened quickly and severely; but tolerant varieties are more durable. Some commercial nurseries carry State certified, virus-free stocks of most varieties. These are usually much more productive than ordinary stocks.

Catskill, Earlidawn, Fairfax, Marshall, and Midland are particularly sensitive to virus diseases. Blakemore, Dabreak, Goldsmith, Headliner, Northwest, Robinson, Shasta, Siletz, Surecrop, and Tioga are highly tolerant.

Root Diseases

Red stele root rot is a major disease of strawberries. Few varieties are spared. Dwarfing and sudden wilting are symptoms of this fatal fungus disease. Red stele ranges across the entire United States, from Virginia to California. It can be found northward and in some areas of the South.

Once this disease has appeared in fields that have heavy soil or

poorly drained, sandy soil, you can prevent the contamination of nearby fields by: controlling drainage water, using uncontaminated machinery, and growing only resistant varieties of strawberries. Columbia, Guardian, Hood, Marshall, Midway, Quinault, Redchief, Redglow, Siletz, Sparkle, Sunrise and Surecrop—all are resistant.

Not all "resistant" varieties are resistant to all races of this fungus. But Siletz and Hood in western Oregon, and Guardian, Sunrise, Surecrop, and Redchief in the Eastern States are resistant to several races of the fungus.

Verticillium wilt is a soilborne fungus that infects and severely damages the roots, crowns, and leaf stems of susceptible varieties. Although most varieties are susceptible, Blakemore, Catskill, Guardian, Robinson, Surecrop, and Siletz are highly resistant.

COMMERCIAL VARIETIES

Commercial varieties of strawberries are those that have already demonstrated qualities favorable to market and processing requirements. Varieties are selected for their durability during long distance shipment for fresh market and for their adaptability to frozen pack, ice cream, and preserves.

Shipping Fresh Berries

Berries must be firm to remain wholesome during transit. When they reach the consumer, straw-

berries must appear fresh and appetizing. There should be no overripe, soft, moldy, or decayed berries.

In recent years, the use of air freight to ship strawberries rapidly over long distances has changed marketing practices. Now there is an increased quantity of strawberries transported fresh from the West Coast. Varieties should be selected, in part, according to the distance to be shipped.

When grown in regions to which they are well adapted, Albritton, Blakemore, Earlibelle, Goldsmith, Headliner, Midway, Shasta, Sunrise, Tennessee Beauty, and Tioga are the best varieties for shipment.

Frozen Pack

In 1970, 36 percent of the total United States strawberry crop was processed by freezing. This amounted to 179 million pounds. An additional 118 million pounds of frozen strawberries were imported from abroad. A large percentage of the domestic frozen pack strawberries are grown in Oregon, Washington, and California.

Varieties best for freezing have a rich, uniform, red color. In addition, they are firm and have high flavor. The best varieties are usually Earlibelle, Earlidawn, Midland, Northwest, Pocahontas, Redchief, and Sparkle. Catskill, Hood, Marshall, Midway, Puget Beauty, Siletz, and Tennessee Beauty are above average for freezing.

Ice Cream and Preserves

For the ice cream trade, medium red strawberries with high (usually tart) flavor are desired. Blakemore, Marshall, and Pocahontas are preferred, but several other varieties may be substituted for them.

Varieties for preserves should have berries that are medium in size, firm, and highly flavored. The berries must be uniformly colored a light bright red that will not darken after preserving.

In the East, Blakemore, Earlidawn, Pocahontas, and Sunrise are best for preserves; Albritton, Midway, and Tennessee Beauty are considered satisfactory. In the Pacific Northwest, Hood and Marshall are rated best; Northwest is considered satisfactory.

GARDEN VARIETIES

Choose varieties for your home garden according to the region of the country in which you live. Consider the size of your garden and your intended use of the berries as well. Select only one variety for a small garden. For a larger garden, select two or more varieties, especially one early ripening and one late ripening type.

Regional Selection

In much of the South, home gardeners grow Blakemore. In western Virginia, West Virginia, Kentucky, and Tennessee, however, Tennessee Beauty is grown. In eastern Virginia, North and

South Carolina, northern Georgia, Alabama, and Mississippi, Albritton is preferred. Florida Ninety and Tioga are grown in Florida. Headliner is grown in southern Georgia, Alabama, Mississippi, Louisiana, and southern Texas.

In Maryland and nearby States, Fairfax, Midland, Pocahontas, Redstar, and Surecrop are grown for the family table. With the exception of Fairfax, all of these varieties are satisfactory for home freezing.

In New England, New York, Ohio, Michigan, and Wisconsin, Catskill, Midway, and Sparkle are popular varieties. Cyclone, Dunlap, and Trumpeter are considered best for the Great Plains

States and for the Upper Mississippi Valley.

In the Western United States, Marshall, Northwest, and Tioga are grown most extensively in home gardens.

Everbearing Varieties

Everbearing varieties generally are not grown commercially. They are used extensively and almost exclusively in home gardens. Everbearing varieties grow satisfactorily from northern New Jersey westward to the Great Plains States and northward.

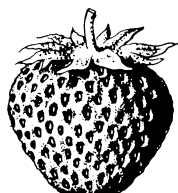
Everbearing varieties are versatile and adaptable. They succeed at high elevation in the Ap-



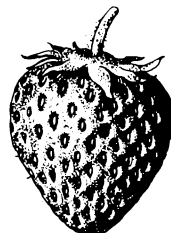
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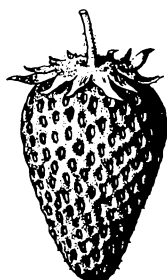
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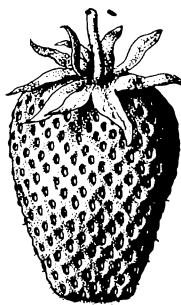
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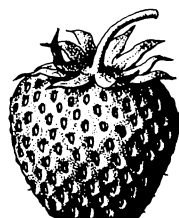
LONG CONIC



NECKED



LONG WEDGE



SHORT WEDGE

DN-958

Shapes of strawberries.

palachian Mountains as well as in irrigated regions from Colorado and Montana to northern California, Oregon, and Washington.

The foremost everbearing variety is Gem (also called Brilliant and Superfection). Geneva, Ogallala, Radiance, Red Rich, Rockhill, Streamliner, and Twentieth Century are other everbearers that are grown less extensively. Geneva, Red Rich, and Rockhill are notable for high flavor. Ogallala and Radiance are especially winter hardy.

DESCRIPTIONS

By referring to the following descriptions and to the table on page 14, you can select the variety that best suits your locality and purpose.

Most of the varieties described are widely grown in at least one region. Some are promising new varieties that have already been tested. Others are grown for special purposes or are dominant in special areas. All are perfect flowered.

Commercially important qualities are mentioned within each description. Immediately following each name are place and date of origin. Where date of origin is unknown, the date of introduction is given.

Albritton

North Carolina, 1945. Berries are large, uniform, conic, and very firm. Skin is glossy and bright red; flesh is red up to cen-

ter, and seeds are on the surface. Excellent quality. Subacid. Late. Plants are vigorous and produce many runners. Albritton is well adapted for freezing and it develops a high flavor in North Carolina. It is not productive or fully hardy in Maryland and New Jersey.

Armored

Missouri, 1938. Berries are large, irregular, and range from short wedge to blunt conic. The firmness is medium. Skin is yellowish red, and flesh is light. Good dessert quality. Late midseason. Armored is productive, produces runners freely, and grows best in heavy silt loam. It also has small cupped leaves that are subject to mildew and leaf spots. Armored and Tennessee Beauty have replaced Aroma.

Blakemore

Maryland, 1923. Berries are small, blunt conic, and firm. They have bright, light-red skin and light-red flesh that will not darken during holding. Blakemore has a high acid and pectin content. Fair dessert quality. Berries are easy to hull. Early ripening. Plants are vigorous and produce many runners. Highly tolerant to virus diseases. Very resistant to verticillium wilt and to leaf scorch and leaf spots. Blakemore is especially desirable for preserving. A leading variety in the United States and grown over a wide range of soil types in the region from Virginia to Georgia and westward to Oklahoma and southern Missouri.

Table 1—Characteristics of Leading Strawberry Varieties when Grown in Favorable Areas

Variety	Plant Disease Resistance					Fruit Characteristics					
	Leaf Spot	Leaf Scorch	Red Stele	Verticillium Wilt	Virus Tolerance	Ripening Season: Days After Midland	Size	Flesh Firmness	Skin Firmness	Dessert Quality	Processing Quality For Freezing
Albritton	Resistant	Very Resistant	Susceptible	Susceptible	Susceptible	12	Large	Very Firm	Firm	Excellent	Good
Aliso	Unknown	Unknown	Susceptible	Susceptible	Unknown	7	Large	Medium	Medium	Good	Good
Apollo	Resistant	Very Resistant	Susceptible	Susceptible	Unknown	7	Large	Very Firm	Firm	Good	Good
Armore	Susceptible	Susceptible	Susceptible	Unknown	Unknown	10	Large	Medium	Soft	Good	Poor
Atlas	Resistant	Very Resistant	Susceptible	Intermediate	Unknown	3	Very Large	Firm	Firm	Good	Poor
Badgerbelle	Resistant	Susceptible	Susceptible	Unknown	Unknown	14	Large	Soft	Soft	Fair	Fair
Blakemore	Susceptible	Very Resistant	Susceptible	Resistant	Tolerant	3	Small	Firm	Firm	Fair	Good
Catskill	Susceptible	Resistant	Susceptible	Very Resistant	Very						
Citation	Very				Susceptible	7	Very Large	Soft	Soft	Good	Fair to Good
	Susceptible	Intermediate	Susceptible	Unknown	Unknown	7	Large	Medium	Medium	Good	Good
Columbia	Resistant	Resistant	Resistant	Unknown	Tolerant	18	Medium	Medium	Firm	Fair	Good
Cyclone	Resistant	Unknown	Susceptible	Unknown	Tolerant	3	Large	Soft	Soft	Very Good	Good
Dabreak	Very Resistant	Resistant	Susceptible	Unknown	Tolerant	0	Medium	Medium	Medium	Good	Good
Dunlap	Susceptible	Unknown	Susceptible	Unknown	Tolerant	7	Medium	Soft	Soft	Very Good	Fair
Earlibelle	Very Resistant	Very Resistant	Susceptible	Susceptible	Tolerant	3	Large	Very Firm	Very Firm	Good	Very Good
Earlidawn	Susceptible	Intermediate	Susceptible	Susceptible	Susceptible	0	Large	Medium	Medium	Fair	Very Good
Empire	Intermediate	Intermediate	Susceptible	Very Resistant	Unknown	7	Large	Soft	Soft	Very Good	Fair
Fairfax	Resistant	Resistant	Susceptible	Unknown	Susceptible	7	Medium	Firm	Soft	Excellent	Fair
Fletcher	Resistant	Very Resistant	Susceptible	Resistant	Unknown	7	Medium	Medium	Soft	Very Good	Good
Florida Ninety	Very	Very									
	Susceptible	Susceptible	Susceptible	Susceptible	Unknown	5	Very Large	Soft	Soft	Very Good	Fair
Fresno	Intermediate	Unknown	Susceptible	Susceptible	Intermediate	7	Very Large	Firm	Firm	Fair	Fair
Gala	Resistant	Unknown	Susceptible	Resistant	Unknown	0	Large	Soft	Soft	Very Good	Good
Garnet	Resistant	Unknown	Susceptible	Unknown	Unknown	12	Large	Soft	Soft	Good	Good
Gem	Susceptible	Resistant	Susceptible	Unknown	Unknown	7	Small	Soft	Soft	Fair	Fair
Guardian	Resistant	Resistant	Resistant	Very Resistant	Unknown	7	Very Large	Firm	Firm	Good	Fair
Headliner	Resistant	Unknown	Susceptible	Unknown	Unknown	7	Large	Medium	Medium	Good	Good

Hood	Resistant	Resistant	Resistant	Resistant	Susceptible	14	Large	Medium	Medium	Very Good	Good
Howard 17 (Premier)	Resistant	Resistant	Susceptible	Resistant	Tolerant	3	Medium	Soft	Soft	Good	Poor
Jerseybelle	Very Susceptible	Susceptible	Susceptible	Susceptible	Susceptible Very	14	Very Large	Soft	Firm	Fair	Poor
Marshall	Susceptible	Susceptible	Resistant	Unknown	Susceptible	7	Large	Soft	Soft	Excellent	Very Good
Midland	Resistant	Resistant	Susceptible	Susceptible	Susceptible	0	Large	Firm	Soft	Excellent	Very Good
Midway	Very Susceptible	Susceptible	Resistant	Intermediate	Unknown	10	Large	Firm	Firm	Good	Very Good
Northwest	Resistant	Unknown	Susceptible	Intermediate	Tolerant	14	Medium	Medium	Medium	Good	Very Good
Ogallala	Unknown	Unknown	Susceptible	Unknown	Unknown	7	Medium	Soft	Soft	Good	Good
Ozark Beauty	Resistant	Resistant	Susceptible	Unknown	Unknown	14	Medium	Medium	Medium	Very Good	Good
Pocahontas	Resistant	Intermediate	Susceptible	Susceptible	Unknown	7	Large	Medium	Medium	Good	Very Good
Puget Beauty	Resistant	Susceptible	Susceptible	Unknown	Susceptible	10	Large	Medium	Soft	Very Good	Very Good
Quinault	Resistant	Resistant	Resistant	Unknown	Unknown	7	Medium	Soft	Soft	Good	Fair
Raritan	Susceptible	Susceptible	Susceptible	Susceptible	Unknown	7	Large	Firm	Medium	Fair	Fair
Redchief	Resistant	Resistant	Resistant	Resistant	Unknown	7	Large	Firm	Firm	Good	Very Good
Redglow	Susceptible	Intermediate	Resistant	Susceptible	Unknown	3	Large	Firm	Firm	Good	Very Good
Redstar	Susceptible	Resistant	Susceptible	Unknown	Tolerant	18	Large	Firm	Firm	Good	Good
Robinson	Intermediate	Susceptible	Susceptible	Resistant	Tolerant	10	Large	Soft	Soft	Fair	Poor
Rockhill	Intermediate	Unknown	Susceptible	Unknown	Unknown	7	Medium	Soft	Soft	Very Good	Good
Salinas	Unknown	Unknown	Susceptible	Resistant	Tolerant	0	Large	Medium	Medium	Good	Unknown
Sequoia	Unknown	Unknown	Susceptible	Susceptible	Tolerant	0	Very Large	Soft	Soft	Very Good	Unknown
Shasta	Susceptible	Unknown	Susceptible	Susceptible	Tolerant	7	Large	Medium	Medium	Good	Good
Shuksan	Unknown	Unknown	Resistant	Susceptible	Tolerant	16	Medium	Soft	Medium	Good	Good
Siletz	Resistant	Resistant	Resistant	Resistant	Tolerant	7	Medium	Medium	Soft	Very Good	Good
Sparkle	Susceptible	Intermediate	Resistant	Susceptible	Susceptible	12	Small	Soft	Soft	Very Good	Very Good
Sunrise	Very Susceptible	Resistant	Resistant	Resistant	Unknown	0	Large	Firm	Firm	Good	Fair
Surecrop	Resistant	Resistant	Resistant	Very Resistant	Tolerant	5	Large	Firm	Medium	Good	Good
Suwannee	Resistant	Resistant	Susceptible	Unknown	Susceptible	7	Medium	Soft	Soft	Excellent	Good
Tenn. Beauty	Resistant	Resistant	Susceptible	Unknown	Tolerant	12	Small	Firm	Firm	Good	Good
Tioga	Susceptible	Unknown	Susceptible	Susceptible	Tolerant	10	Very Large	Firm	Firm	Good	Good
Torrey	Unknown	Unknown	Susceptible	Susceptible	Intermediate	14	Large	Medium	Medium	Fair	Fair
Totem	Unknown	Unknown	Resistant	Unknown	Tolerant	14	Large	Medium	Medium	Good	Good
Trumpeter	Very Susceptible	Unknown	Susceptible	Unknown	Tolerant	10	Medium	Soft	Soft	Good	Very Good

Catskill

New York, 1923. Berries are very large, long conic, irregular, and not firm. Fruit is attractive and has a bright-crimson skin and light-red flesh. Good dessert quality. Above average for freezing and mildly subacid. Produces runners freely. Plants are sensitive to virus diseases and foliage is susceptible to leaf spots. Catskill is recommended as a mid-season variety for home use and for local markets. It may be grown over a wide range of soil types from New England and New Jersey to southern Minnesota.

Columbia

Washington, 1960. Berries are large, blunt conic, medium firm, and have a good, red color. Mild subacid berries with good processing qualities. Not as satisfactory as Marshall for preserving. Columbia's berries have a large distinctive calyx or cap. Resistant to mildew and red stele. Some resistance to fruit rot and some toleration of virus diseases. Sometimes the size of the berries diminishes as the season advances. Not as productive as Northwest and ripens about one week later.

Cyclone

Iowa, 1959. Berries are large, sweet, conic, and bright red. Soft, with very good flavor. Ripens early and very good for freezing. Cyclone is winter hardy, drought resistant, and resistant to foliage

diseases. Good home garden variety for the North Central States.

Dabreak

Louisiana, 1961. Berries are large and very attractive. Color is medium red. Good dessert and preserving quality and subacid. Very productive and early. Resistant to leaf spot. Now a leading variety in Louisiana.

Dunlap

Illinois, 1890. Berries are medium size, conic, and soft. Skin is dark crimson and flesh is deep red. Very good quality and subacid. Early to midseason. Plants are hardy and produce many runners. Drought resistant and tolerant to virus diseases. Fruit is too soft to ship well and is grown chiefly for home use and local markets. Foliage is susceptible to leaf spots and leaf scorch. Where Catskill or Howard 17 (Premier) are hardy, they have largely replaced Dunlap. Dunlap adapts to a wide range of soil types and thrives on clayey soil. It is grown in northern Illinois, Wisconsin, Minnesota, North Dakota, South Dakota, Nebraska, and Iowa.

Earlidawn

Maryland, 1947. Berries are large, conic, somewhat irregular in shape, and medium firm. Good dessert quality. Berries have bright, light-red skin, glossy surface, and bright-red flesh. Blossoms and produces fruit early. As blossom-hardy to frosts as How-

ard 17. Plants are productive, but make fewer runners than most varieties do. Earlidawn is moderately resistant to leaf spots and leaf scorch. Susceptible to verticillium wilt. An early fresh market and freezing variety. Earlidawn is adapted to Maryland, north to New England, and west to Missouri.

Fairfax

Maryland, 1923. Berries are medium in size, attractive and wedge shape to short, blunt, and conic in shape. Deep-red flesh is covered with brighter red skin. Excellent dessert quality. Mildly subacid. Medium early. Makes fewer runners than many other varieties. Plants are especially productive when late season runners are picked off. Berries turn dark if not picked and marketed promptly after they first ripen. Foliage is resistant to leaf spots and leaf scorch. Plants are sensitive to virus diseases. Fairfax is grown from southern New England to Maryland and westward to Kansas.

Fletcher

New York, 1959. Berries are medium in size, soft, conic in shape, medium red in color. Glossy, tender skin. Very good to excellent flavor. Very good for freezing. Plants are vigorous, produce runners freely. Ripens in midseason. Good home garden variety for New York and New England.

Florida Ninety

Florida, 1947. Berries are soft, irregular, and long conic. In Florida, they are very large, early in season. Color is medium red and flesh is light pink. Good to very good dessert quality. Productive. Florida Ninety grows more runner plants than any other variety. Very susceptible to leaf spots and leaf scorch. Florida Ninety is a chief variety in Florida.

Fresno

California, 1955. Berries are large, long conic, firm fleshed, and attractive with a bright-red skin. Caps (calyx) are easily removed. Plants are productive with many runners. Vigorous and resistant to viruses. Recommended for summer planting only. Fresno is especially adapted to southern California, where it follows a moderately heavy spring crop with a rather heavy midsummer bearing.

Gem (Brilliant, Superfection)

Michigan, 1933. Berries are soft, small, and irregular short wedge to oblate in shape. Surface is a glossy, deep red. Center is a paler red. Good dessert quality. Acid. Gem is resistant to leaf scorch but susceptible to leaf spots. The leading everbearer.

Headliner

Louisiana, 1957. Berries are large, blunt conic, medium firm, and medium red. Good des-

sert quality and mildly subacid. Midseason. Plants are vigorous, productive, and make runners freely. Resistant to leaf spots. Not adapted to Central or Northern States.

Hood

Oregon, 1965. Berries are large, round conic, uniform, and medium firm. Bright, medium-red, glossy skin. Good dessert quality. Very good for preserving. Mildly subacid. Ripens in season with Northwest. Resistant to mildew and foliage diseases in the Pacific Northwest. Not as tolerant of virus diseases as Northwest variety, but more resistant to red stele. Replaces or supplements the Marshall variety, but not as good as Northwest for freezing.

Howard 17 (Premier)

Massachusetts, 1909 (Introduced). Berries are medium in size, long conic, and of good quality. Subacid. Both skin and flesh are red. Early, with long bearing season. Plants are productive and generally produce runners freely. Resistant to leaf diseases and highly tolerant to virus diseases. Fruit not firm enough to ship to distant markets. Howard 17 has been widely grown in the North, but is now largely replaced by Catskill, Earlidawn, and Sparkle.

Jerseybelle

New Jersey, 1955. Berries are very large, blunt conic, and soft. Very glossy, medium red in color.

Mild flavor and not adapted to freezing. Late. Large plants, with a medium number of runners. Noted for its large, showy, and attractive fruits. Very susceptible to leaf spot, leaf scorch, red stele, and verticillium wilt. Productive from southern New Jersey northward.

Marshall

Massachusetts, 1890. Berries are large, irregular, round conic to conic, and soft. Deep-crimson skin and light-red flesh. Midseason. Standard of excellence in dessert quality. Very good for preserving. Mildly subacid. Preferred by the ice cream industry. Drought resistant. Susceptible to leaf spots and very sensitive to virus diseases. Grown on the higher elevations in western Oregon and western Washington for freezing.

Midland

Maryland, 1929. Berries are large, round conic, and irregular in shape. Glossy surface and deep-red flesh. Medium in firmness. Very good to excellent dessert quality. Mildly subacid. Ripens very early. Freezes very well. Plants are productive, but make fewer runners than most other varieties. Midland yields well when irrigated and grown in fertile soil or in the hill system. Resistant to leaf spots and leaf scorch in general. Sensitive to virus diseases. Midland is popular from southern New England to Virginia and west to Iowa and Kansas.

Midway

Maryland, 1951. Berries are long conic, with firm flesh and a firm surface. Medium to large in size. Glossy, rich red in color. Mid-season. Good dessert quality. Subacid. Very good for freezing. Plants produce runners freely. Resistant to some races of red stele. Susceptible to leaf spots, leaf scorch, and verticillium wilt. Not as resistant to drought as some varieties. The leading variety in Michigan. Very productive in all the Northeastern States south to Maryland.

Northwest

Washington, 1941. Berries are medium in size, uniform, and are long, blunt conic. Medium in firmness, bright crimson, glossy surface. Red flesh. Very good dessert quality and subacid. Very good for freezing. Late ripening. Plants are tolerant to virus diseases but susceptible to leaf spots. Northwest ripens about one week after Marshall and has largely replaced it in Washington and Oregon.

Ogallala

Nebraska, 1956. Berries are soft, medium in size, and dark red. Sweet, good flavor and good for freezing. Berries ripen early. Plants are vigorous, hardy during winter. Resistant to leaf spot and resistant to drought. Ogallala is an everbearing variety grown from the Mississippi River west through the Rocky Mountain States.

Ozark Beauty

Arkansas, 1955 (Introduced). Berries are large, sweet, and good flavored. An everbearing variety. Color and flesh is bright red. Productive on mother plants, not on runner plants, during summer and fall. Plants may have variegation or June yellows, which weakens them.

Pocahontas

Maryland, 1946. Berries are large, attractive, and blunt conic. Medium in firmness. Bright, medium-red skin and red flesh. Ripens early. Good dessert quality and subacid. Very good for freezing. Plants are vigorous and produce runners freely. Foliage is generally resistant to leaf scorch and partially resistant to leaf spots in the South. Pocahontas is a productive variety for the northern Blakemore area. It may be grown from southern New England south to Norfolk, Virginia, and west to Missouri.

Premier

Read the description for Howard 17.

Puget Beauty

Washington, 1956. The berries are large, sometimes necked, and conic to long conic. Medium in firmness. Bright, medium-red, glossy skin. Mildly subacid. Good dessert quality and good for preserving. Not as good as Northwest for freezing. Resistant to mildew and some resistance to red stele. Not as tolerant as Northwest to viruses. Puget Beauty is a mid-season variety for western Washington.

Quinault

Washington, 1967. Berries are large to very large and round to round conic. Soft. Attractive bright red in color. Good dessert quality, but not good for frozen products. Susceptible to mildew. Quinault is an everbearing type for home gardens in the Western States.

Raritan

New Jersey, 1968. Berries are large, firm, and glossy. Bright red with a good flavor. Plants are medium in size and very productive. Moderate number of runners. Plants are susceptible to red stele and verticillium wilt. Not so drought-resistant as some varieties. Raritan ripens in midseason. Replaces Jerseybelle in some areas.

Redchief

Maryland, 1968. Berries are firm, medium in size, and conic in shape. Skin is glossy and medium red. Flesh is deep red. Good flavor and very good for freezing. Ripens early. Caps easily removed. Plants are medium in vigor, produce runners freely. Resistant to red stele and verticillium wilt. Leaves are resistant to leaf scorch and mildew. Somewhat susceptible to leaf spot.

Red Rich

Minnesota, 1938. Berries range from small to large, and are very irregular and short conic. Color is an attractive, rich red. Excellent flavor and subacid. Everbearing.

Produces few plants. Foliage is resistant to leaf spots and leaf scorch. Red Rich is adapted to the Northern States.

Redstar

Maryland, 1931. Berries are large, irregular, and blunt conic. Firmness is medium. Color is medium red. Ripens very late. Good to very good dessert quality and subacid. Plants are tolerant to virus diseases and make runners freely. Leaves are large and resistant to leaf spots and leaf scorch. Redstar is one of the better late varieties. Grown from southern New England south to Maryland and west to Missouri and Iowa.

Robinson (Kardinal King, Scarlet Beauty)

Michigan, 1932. Berries are large, soft, conic, and red. Light red flesh and mild flavor. Late ripening. Not adapted to freezing. Plants are small, but make runners very freely. Robinson is noted for its productivity and large, showy berries. Partially resistant to leaf spots, tolerant to virus diseases, and susceptible to leaf scorch. Robinson is rapidly being replaced by firmer, better flavored varieties, such as Midway.

Rockhill (Wazata)

Iowa, 1918. Berries are irregular and round conic to short wedge in shape. Medium in firmness. Bright-red skin and light-red flesh. Everbearing. Excellent

quality and subacid. Plants produce few runners and may be propagated by crown division. Foliage is dark green and healthy. Excellent flavor, large size, and attractive appearance make Rock-hill highly desirable. Grown in Minnesota, Iowa, Oregon, and other Northern States.

Shasta

California, 1935. Berries are very large and round conic in shape. Bright-red to medium-red skin blackens when overripe. Pale flesh and yellow seeds. Midseason. Mildly subacid. Plants are vigorous and produce runners freely. Tolerant to virus diseases. Shasta is grown in California, Oregon, and Washington. Recommended for summer planting only in California. A leading variety in central coastal California, but, because of low yield, Shasta is being replaced by Tioga. Near the coast, it often produces berries semi-continuously from April to November.

Siletz

Oregon, 1947. Berries are medium in size and blunt conic in shape. Dark red and soft. Very good dessert quality. Plants produce runners very freely. Resistant to red stele. Siletz is adapted to the Pacific Northwest.

Sparkle (Paymaster)

New Jersey, 1931. Berries are short blunt conic to oblate in shape. Medium in size but sometimes small. Soft and glossy, rich red. Mildly subacid. Very good

dessert quality. Very good for freezing. Plants produce runners freely. Resistant to some races of red stele and partially resistant to leaf spots. Susceptible to virus diseases. Sparkle is a productive, late variety. Grown in the Northeastern States west to Wisconsin.

Sunrise

Maryland, 1964. Berries are medium in size and conic in shape. Very symmetrical and firm. Glossy, firm skin. Light red and does not darken at maturity. Very good flavor. Flesh too pale for freezing. Ripens early. Plants are vigorous and produce runners freely. Resistant to several races of red stele and moderately resistant to verticillium wilt. Leaves resistant to leaf scorch and mildew, but susceptible to leaf spot. Sunrise is productive in South Central States, not productive in Northern States.

Surecrop

Maryland, 1950. Berries are large, round conic, and irregular in shape. Glossy surface and firm. Medium-red exterior and light-red interior. Ripens early. Good dessert quality, subacid. Plants are large and produce many runners. Productive when spaced 6 to 9 inches apart. Resistant to several races of red stele, to verticillium wilt, leaf spots, leaf scorch, and drought.

Tennessee Beauty

Tennessee, 1933. Berries are attractive, uniform, and long conic



in shape. Medium in size. Color is a glossy, medium to deep red. Good dessert quality and mildly subacid. Large caps. Good freezing quality. Late midseason. Plants produce runners freely. Resistant to leaf spots and leaf scorch. Tolerant to virus diseases. Less drought-resistant than other varieties. Because of its flavor, firmness, color, and productivity, Tennessee Beauty is a leading variety from Maryland to Missouri.

Tioga

California, 1955. Berries are large in size and long conic in shape. Firm flesh and tough skin. Red- to light-red flesh and yellow seeds. Attractive, light-red skin. Good appearance even when over-ripe. Good dessert quality. Caps easily. Ships well to distant markets. Plants are vigorous and produce runners freely. Susceptible to leaf spot. Tioga is the leading variety in California. Recommended for summer and winter planting. In California, plants produce an exceptionally heavy crop for over 2 months beginning in March or April. Grown also in Florida.

Trumpeter

Minnesota, 1960. Berries are medium in size and short conic in shape. Soft and glossy. Very good flavor. Good for freezing. Plants are vigorous and produce runners freely. Ripens late. Winter hardy and productive, but

susceptible to leaf spot. Grown in garden variety from the Mississippi Valley and Plains States.

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